

September 14, 1984

Mr. Robert Weisman
IBM Corporation
Department IIN20
44 South Broadway
White Plains, NY 10601

Dear Mr. Weisman:

Enclosed please find five copies of the final report entitled "Analysis of Price and Discount Structures of Vendors of Display Terminals in the High Volume Market-place."

These reports represent the deliverable terms as described in my proposal addressed to you and dated July 11, 1984.

If any of the data requires further explanation or clarification, please do not hesitate in contacting me.

Very truly yours,



Richard L. Peterson, Ph.D.
Director of Consulting Services

RLP:eh

Enclosures



ANALYSIS OF PRICE AND DISCOUNT STRUCTURES
OF VENDORS OF DISPLAY TERMINALS
IN THE HIGH VOLUME MARKETPLACE

INPUT

SEPTEMBER 1984

INPUT



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INTRODUCTION

This section contains a statement of the scope of the study, the purpose and methodology used in performing the study and an outline of the organization of the report.

A. Purpose

The purpose of the report is to present IBM with the results of a survey of both users and vendors of VDT's (Visual Display Terminals), focusing on the vendor selection criteria and, in particular, emphasizing vendor pricing and price discounting practices and policies. All surveys were made in the context of high volume VDT users. High volume users were defined as those companies who had at least 2,000 terminals installed and who had entered into a recent agreement with one or more vendors to replace, or add to, a significant number of these terminals.

B. Survey of the Study

This study included telephone surveys of 43 separate situations in 37 U.S. firms who are high-volume users of VDTs. There were also telephone surveys of ten VDT vendor companies that were preselected by IBM.

If a U.S. company purchased VDTs for its foreign divisions or subsidiaries, these terminals were also included in the study.

Sample questionnaires are included in Appendix A and Appendix B. A listing of the users contacted is contained in Appendix C and the vendor list is contained in Appendix D.

C. Methodology

The following procedures were utilized in completing this study:

- After initial consultation with IBM personnel, a partial list of high volume VDT

users was developed for survey purposes. A similar list of VDT vendors was also prepared.

- Questionnaires were developed in accordance with the goals of the study as set forth in the original study proposal.
- The user questionnaires were tested in a sample survey. Vendor questionnaires were simple enough as to not require pretesting.
- The user and vendor data was gathered through an extensive telephone survey. In some cases, vendors submitted data both verbally, over the telephone, and in writing.
- The raw data was analyzed prior to tabulation. During this analysis a number of completed questionnaires were disqualified due to:
 - incomplete or illogical responses
 - failure to meet the definition of a high volume display user
- Each complete and valid questionnaire was tabulated so that the answers to each question in the questionnaire could be summarized.
- The summary data was analyzed so that relationships among different data elements could be identified and presented.
- The summarizations and the results of the analysis were documented for inclusion in the report.
- The report was completed and an executive presentation for IBM was prepared.

D. Report Organization

The remainder of this report is organized as follows:

- Chapter II is an Executive Summary containing the key findings and conclusions.
- Chapter III contains a summary and analysis of the user replies.
- Chapter IV contains a summary and analysis of the vendor replies.
- Appendix A contains a copy of the user questionnaire.
- Appendix B contains a copy of the vendor questionnaire.
- Appendix C contains a list of users contacted.
- Appendix D contains a list of vendors contacted.

II EXECUTIVE SUMMARY

This section contains the key findings and conclusions of the study.

- The high volume VDT market is highly competitive - price is the key factor in the buy decision.
- All VDT vendors discount prices to obtain high volume sales.
- Vendors have stated pricing policies for high volume sales - however these stated policies are almost always negotiable.
- While high volume purchase agreements contain time limits related to the price discounts, these time limits are frequently waived.
- Most vendors will allow existing installed terminals to be included in a high volume purchase agreement.
- A "mix and match" policy of including different models in the agreement is normally allowed by vendors. However, vendors will only include current models in the agreement.
- Users tend to:
 - Look upon IBM as the standard for terminal features and pricing.
 - Almost always include IBM in the bidding process.
- High volume contracts are usually negotiated by vendors at the regional or corporate sales executive level.

III SURVEY RESULTS - USERS

A. Summary of Responses to Individual Questions

EXHIBIT III-1

METHODOLOGY SUMMARY

- Interview Type -Telephone
- Duration -10-12 Minutes
- Type of Respondent -EDP Management
-Administration
- Time Period -August, September 1984
- Number of Valid User Surveys Completed -Companies - 37¹
-Survey Forms - 43¹

1. In surveying several companies, separate, autonomous divisions or subsidiaries resulted in more than one valid interview.

EXHIBIT III-2

INTERVIEWS BY JOB TITLE

EDP Management	28
General Administration	8
Purchasing	6
Finance	<u>2</u>
TOTAL	<u>44</u>

EXHIBIT III-3

FREQUENCY OF APPEARANCE OF COMPANIES
IDENTIFIED AS VDT VENDORS

<u>COMPANY</u>	<u>NUMBER OF TIMES</u> <u>MENTIONED</u> ^{1, 2}
IBM	36
ITT	12
Telex	12
DEC	6
Hazeltine	3
Lee Data	3
Memorex	4
ADDS	3
Harris	2
Racal-Milgo	2
Raytheon	3
Sperry	2
Teletype	2
Zenith	2
Honeywell	2

1. This table contains a count of the number of times each listed company was identified in the survey either as successful bidder or as a final but unsuccessful bidder.
2. Other companies mentioned once: ATT, Techtronix, TeleVideo, Hewlett-Packard, Beehive, Burroughs, Wang, Paradyne, Four-Phase, Northern Telecom, Bunker-Ramo, Quotron, Radio Shack, Zentec, Apple.

EXHIBIT III-4

PERCENT DISCOUNT - BY MAJOR VENDOR

<u>COMPANY</u>	<u>REPORTED DISCOUNT RANGE</u>	<u>AVERAGE REPORTED DISCOUNT</u>
IBM	0-40%	24%
ITT	20-25%	22%
Telex	20-30%	26%
DEC	30%	30%
Hazeltine	23%	23%
Lee Data	20%	20%

EXHIBIT III-5

"MIX-AND-MATCH" POLICY - BY VENDOR

MAJOR VENDORS ALLOWING

"MIX-AND-MATCH"

IBM

ITT¹

Telex

DEC

Hazeltine

Lee Data

Telex

Memorex

ADD

Harris

Racal-Milgo

Raytheon

Teletype

MAJOR VENDORS NOT ALLOWING

"MIX-AND-MATCH"

ITT¹

Sperry

1. Reported as both allowing and not allowing, by different users.

EXHIBIT III-6

IMPORTANCE OF PRICE DISCOUNTING
DURING THE BUY DECISION

<u>CATEGORY</u>	<u>TIMES MENTIONED</u>
1. Not Important	5
2. Of Slight Importance	3
3. Somewhat Important	11
4. Important	9
5. Very Important	15
6. No valid answer	<u>4</u>
TOTAL ¹	<u>47</u> <u>—</u>

1. In four cases, a user gave multiple answers related to multiple vendors bidding on the same R.F.P.

EXHIBIT III-7

CONVERSION OF EXISTING TERMINALS

	<u>NUMBER OF RESPONSES</u>
- No conversion rights	11
- Conversion allowed but will not apply to discount	5
- Conversion allowed and will apply to discount	18
- No answer or not applicable	<u>13</u>
TOTAL	<u>47</u>

B. Analysis of Results

- This section contains the results of an analysis of the summary data presented in the previous section.
- The majority of the respondents stated that price discounting by the vendor was important factor in selecting both the vendor and the particular terminal model offered by the vendor.
 - 32% - Very important (5)
 - 19% - Important (4)
- However, there was no direct correlation between those who stated that a price discount was important and the size of the discount that was negotiated.
- A "mix-and-match" policy is common as part of a high volume terminal sale/lease agreement. Of those users answering either "Yes" or "No" to this question, 78% answered in the affirmative. (This question was not applicable in 9% of the respondents answers.)
- A large number of the respondents (71% of those replying to the question) indicated that the agreement with their hardware vendor for high volume discounts did not have a finite duration; i.e., it was "open" in nature. In all probability, many of these "open" contracts have (or had) a finite duration but were extended by mutual, informal agreement.
- The survey indicated a strong awareness on the part of the respondents that IBM's high volume terminal discount policy set a pricing criteria that impacted the pricing policies of competitors. A number of high volume terminal contracts that were signed prior to March, 1983 were continued force but the vendor (formally, or informally) extended deeper discount terms after IBM announced its discount policy.
- In general, users reported that, vendors extended more liberal discount policies than those that were contractually agreed to.

- Of those responding to the question, 67% of the respondents indicated that the contract was signed with the selected vendor after negotiating with other vendors. This figure, plus other comments made by the respondents indicates a highly competitive environment for vendors. price and price discounts are the key competitive factors.
- Of the 34 replies concerning conversion (excluding those "not applicable" situations), 23, or 68%, of the respondents indicated that their contracts allowed conversion rights. Those vendors reported as not allowing conversion rights were:
 - IBM.
 - Behive.
 - Burroughs.
 - Lee Data.
 - ITT Courier.
 - ADDS.
 - Hewlett-Packard.
- However, in other reported situations IBM and ITT Courier were reported as allowing conversion rights.

C Invalid Questionnaires

- In addition to the forty three valid questionnaires that were included in the study, there were an additional 44 user interviews that resulted in only partial data or were completed surveys that did not meet the studies criteria.
- While not included in the study, an analysis of these questionnaires revealed the following:

- In a number of large companies no one knows how many terminals are installed or who the terminal vendor(s) are.
 - In spite of stated corporate policy to the contrary, terminals are frequently purchased on a de-centralized basis.
 - It is possible that certain user companies have negotiated high volume terminal purchase agreements and terminals have been purchased outside of these agreements because of lack of awareness of the agreement.
- It should be noted that all the companies on the list furnished to INPUT by IBM were contacted. However, the majority of the individuals responding to the survey in these companies were not aware of the numbers of installed terminals that were indicated by IBM.

IV SURVEY RESULTS - VENDORS

A. Summary of Responses to Individual Questions

EXHIBIT IV-1

METHODOLOGY SUMMARY

- | | |
|--|---|
| • Interview Type | Telephone |
| • Duration | 12-15 minutes |
| • Type of Respondent | Sales Management |
| • Time Period | August, September 1984 |
| • Number of
Valid Vendor
Surveys Completed | Companies <u>10</u>
Survey Forms <u>10</u> |

EXHIBIT IV-2
RESPONSES - BY VENDOR

VENDOR NAME	DISCOUNT POLICY	IS MIX- AND-MATCH ALLOWED	HOW DOES MIX-AND-MATCH AFFECT DISCOUNT	TIME ALLOWED FOR HIGH VOLUME DISCOUNT	WHO NEGOTIATES HIGH VOLUME CONTRACT
Hazeltine	Fixed-under 2,000 units; Negotiable- 2,000 or more units	Yes	No effect	12-18 months	Executive Vice President
Informer Computer Terminals	Fixed-under 2,000 units; Negotiable- 2,000 or more units	Yes	No effect	12 months	Vice President National Sales
Televideo Systems, Inc.	Fixed-under 1,000 units; Negotiable- 1,000 or more units - to 40% discount	Yes	No effect	12 months	Regional Sales Director
Telex Computer Products	No set policy; Negotiable at high volumes; 1,000-2,999 units-35% discount; 3,000 or more units-40% discount	Negotiable	No effect	12-18 months	Regional Vice President of Sales

EXHIBIT IV-2
RESPONSES - BY VENDOR
 (continued)

VENDOR NAME	DISCOUNT POLICY	IS MIX- AND-MATCH ALLOWED	HOW DOES MIX-AND-MATCH AFFECT DISCOUNT	TIME ALLOWED FOR HIGH VOLUME DISCOUNT	WHO NEGOTIATES HIGH VOLUME CONTRACT
Lee Data	Up to 500 units fixed; 500 units- 25% discount; over 500 units negotiable	Yes	No effect	18 months	Varies - no stated individual
Memorex	Proprietary	Yes	No effect	18 months	Vice President of Sales (regional)
ADDs	Fixed-under 1,000 units; Negotiable at 1,000 or more units	Yes	Product Development	12-18 months	National Sales Director or Director of Marketing
Decision Data	Negotiable at 150 or more units	Yes	"Probably" no effect	12-18 months	National Account Manager or Vice President of Sales

EXHIBIT IV-2
RESPONSES - BY VENDOR
(continued)

VENDOR NAME	DISCOUNT POLICY	IS MIX- AND-MATCH ALLOWED	HOW DOES MIX-AND-MATCH AFFECT DISCOUNT	TIME ALLOWED FOR HIGH VOLUME DISCOUNT	WHO NEGOTIATES HIGH VOLUME CONTRACT
Raytheon	Flexible- 40% in \$8-10 MM range; tries to structure discounts at 5-10% deeper than IBM	Yes	No negative effect; may affect favorably depend on models	36 months - may go to 60 months	Vice President of Sales
I.T.T. Courier	Flexible- up to 40% for high volume contracts	Yes	Probably no effect	18 months flexible	Director of Large Accounts

B. Analysis of Results

This section contains the results of an analysis of the summary data presented in the previous section.

- There were obvious differences between stated company policies concerning high volume discounts and reality:
 - Company policies are very specific in relation to:
 - Volumes of units
 - Percent of discount
 - Time periods for discounts
 - Sales executives verbally indicated high degree of willingness to negotiate the various factors of a high volume VDT agreement.
- A regional or corporate sales executive is normally involved in negotiating high volume discount contracts.
- All vendors contacted indicated a willingness to allow a mix-and-match policy. In all but one case (Telex), this policy did not affect the discount. Telex indicated that it would allow the mix and match of terminals and the effect of this on the discount would depend on the individual situation.

APPENDIX A

USER QUESTIONNAIRE

YHVD
8/84

User Questionnaire

High Volume Display Terminals

Date: _____

Company: _____

Interviewer: _____

User Questionnaire

Input is a market research company and we have been retained by a Fortune 500 industrial firm that is planning a major purchase of display terminals. Input has been retained to assist our client in obtaining and evaluating proposals from various terminal vendors. Our records indicate that your firm acquired video display terminal equipment within the past two years. Would you mind spending 10-12 minutes with me on the telephone answering some very general questions? In return we will send you summary data representing the results of our study.

1. From whom did you purchase your V.D.T.'s?

A. _____

B. _____

C. _____

(If major purchase was made from more than one vendor, complete multiple questionnaires.)

2. When did you enter into this agreement with the vendor?

Date of Contract _____

(Approximate date is O.K.) (If date was prior to 3/83 data is invalid)

3. How many units are included in the agreement? _____

4. What units are included in the agreement? (Mftr. & Model #'s)

A. _____

B. _____

C. _____

5. How many units have been purchased to date? _____
6. How much longer do you have to purchase the remainder of the units within the terms of the agreement? (eg: price discounts)

7. What was the unit price that you negotiated? _____
8. How much of a discount from list price does this represent?
_____ %
9. Assuming multiple types of display units (Question 4) does the agreement allow you to "mix and match"?

Yes ☐ Comments _____

No ☐ Comments _____

10. Did you negotiate with any other vendors?

☐ Yes - Go to Questions #11

☐ No - Go to Question #13

11. Who else did you negotiate with?

A. _____

B. _____

C. _____

12. What prices and discounts were offered by the other vendors?

<u>Vendor</u>	<u>Price</u>	<u>Discount</u> <u>from List (%)</u>
A. _____	_____	_____
B. _____	_____	_____
C. _____	_____	_____

13. How important was the price discount in selecting the vendor?

Little
Importance

Somewhat
Important

Very
Important

1	2	3	4	5
---	---	---	---	---

14. Did the agreement allow you to convert existing rental terminals to lease, or purchase, within the terms of the agreement?

☐

Yes - Go to Question #15

☐

No - Go to end of survey

15. Did these "conversions" apply towards volume discounts?

☐

Yes

☐

No

End of Survey

1. Double Check:

Name _____

Address _____

Phone Number _____

2. Reiterate that we will send "thank-you" package.

APPENDIX B

VENDOR QUESTIONNAIRE

YHVD
8/84Vendor Questionnaire

High Volume Display Terminals

Date: _____

Company: _____

Interviewer: _____

INPUT is a market research company and we have been retained by a Fortune 500 industrial firm that is planning a major purchase of display terminals. INPUT has been retained to assist our client in obtaining and evaluating proposals from various terminal vendors. Would you mind spending 10-12 minutes on the telephone answering some very general questions concerning your marketing policies?

1. Can you tell me (or send to me) price and volume discount schedules for:

Model _____

Model _____

Model _____

2. Is your volume discount policy fixed, or is it flexible along with other contractual terms?

3. Do you allow a "mix and match" policy in a single contract? How does this affect the discount?

4. With whom does my client negotiate a large volume contract (including discounts)?

5. What time frame do you usually allow for the purchase of total contracted units?

End of Survey

1. Double Check

Name _____

Company _____

Phone Number _____

2. Reiterate - "We will be in touch."

APPENDIX C

LIST OF USERS RESPONDING



APPENDIX C

LIST OF USERS RESPONDING

- Arizona State University
- Automatic Data Processing
- Boeing Aircraft
- Chrysler Corp.
- Cummins Engine
- Dateline
- Dayton-Hudson
- Edwards, A.G.
- Farmer's Insurance Group
- Florida Power & Light
- Florida S&L Service Co.
- G.T.E.
- Hartford Insurance Co.
- International Harvester
- Livermore Laboratories
- Merrill Lynch
- Prudential Insurance
- Southern California Edison Co.
- State of California
- State of New York - Social Services Division
- State of Utah - Data Division
- University of Iowa
- Western Airlines
- Xerox Corporation



APPENDIX D

LIST OF VENDORS RESPONDING



APPENDIX D

LIST OF VENDORS RESPONDING

- ADDS
- Decision Data
- Hazeltine - Espirit Systems
- Informer Computer Terminals
- Lee Data
- Memorex
- Televideo Systems
- Telex



Sent to
 2nd 4th 11
 4 9.6
 Jan 7-10
 file
 7-LS2
 custom
 deliveries

LARGE PROJECTS BY INDUSTRY

<u>INDUSTRY</u>	<u>PROJECT</u>	<u>VALUE</u>
MANUFACTURING	MANUFACTURING INFORMATION	\$ 40 M
	PRODUCTION CONTROL	\$ 25 M
	C.I.M.	\$ 5+ M
	MRP	\$ 3 M
	MRP	\$ 2 M
INSURANCE	AGENT AUTOMATION	\$ 100M
	COM'L INSURANCE APPS.	\$ 30 M
	FINANCIAL SYSTEM	\$ 15 M
	PRODUCT AUTOMATION	\$ 10 M
	RATING & POLICY ISSUANCE	\$ 9 M
	LOSS SYSTEM	\$ 8 M
UTILITIES	CUSTOMER SERVICES	\$ 100M
	BILLING (2)	\$ 5+ M
	DRAFTING/MAPPING	\$ 5 M
	MATERIAL MANAGEMENT	\$ 4 M
	NUCLEAR SAFETY	\$ 4 M
GOVERNMENT	SOCIAL SERVICES	\$12.5M
	CHILD SUPPORT	\$ 11 M
	MOTOR VEHICLES	\$ 10 M
	EDUCATION BUDGET	\$ 10 M
	UNEMPLOYMENT	\$ 7.5M
	COMPUTER MAPS	\$ 7.5M
TRANSPORTATION	NEW NETWORK	\$ 50 M
	INDUSTRY DATA INTERCHANGE	\$ 12 M
	DIST. ORDER ENTRY	\$ 10 M
	RESERVATIONS	\$ 6 M
	RESERVATIONS	\$ 5 M
HOSPITALS	PATIENT CARE	\$ 50 M
	PATIENT CARE	\$ 31 M
	FINANCIAL/PERSONNEL	\$ 20 M
	INSURANCE/FINANCIAL	\$ 10 M
	LAB SYSTEM	\$ 4 M
BANKING	ON-LINE CUSTOMER REPORTS*	\$ 30+M
	SECURITIES PROCESSING*	\$ 25 M
	MONEY TRANSFER*	\$ 20 M
	RETAIL BANKING*	\$ 19 M
	DEMAND DEPOSIT	\$ 18 M
	ELECTRONIC BANKING	\$ 18 M
	BRANCH AUTOMATION	\$ 17 M
	ELECTRONIC DATA INTERCHANGE	\$ 15+M
	RETAIL BANKING	\$ 15 M

* INDICATES PRESENCE ON P. 54 OF BANKING REPORT AS "AMENABLE."



DISCRETE MANUFACTURING (M)

COMPANY

GE
Westinghouse
RCA
McDonnell Douglas
General Dynamics
Georgia Pacific
TRW-Command
Weyerhaeuser
Motorola
Continental Can
International Harvester
Fluor Engineers
American Motors
Firestone Tire
FMC Corp.
Teledyne, Inc.
American Standard
Kaiser Aluminum
American Can
Combustion Eng.
Ingersoll Rand
Cummins Engine
Gillette Co.
J.P. Stevens & Co.
Uniroyal Inc.
Allegheny Int.
Morrison Knudsen
AMP Inc.
General Signal
Foster Wheeler



INSURANCE (N)

COMPANY

CIGNA
Prudential
American Express
Equitable Life
Metropolitan
CNA
Michigan Blue Cross
Liberty Mutual
NY Life
St. Paul Co.
Nationwide
Cologne
Capital Holding Co.
Commercial Union Ins.
Mutual of Omaha
Blue Cross of Mass.
Provident Life & Accident
Northwestern Mutual Life
United Services Auto Assn.
GEICO Corp..
Jefferson-Pilot Info. Serv.
US Life Systems
Employees Ins. of Wausau
Blue Cross/Blue Shield Wisconsin
Independant Life Ins. Co.



TELEPHONE COMPANIES (U2)

COMPANY

Bell South
Nynex
Bell Atlantic
Pacific Bell
S/W Bell
United Telecommunication
NJ Bell
General Telephone of CA
Michigan Bell Telephone
Ohio Bell Telephone
Centel Corp.
South NE Telephone
GTE of S/W
Wisconsin Bell Telephone
GTE of N/W
United Telephone of Florida
GTE of S/E
Carolina Telephone & Telegraph
United Inter Mt. Telephone
United Telephone of PA



UTILITIES (U1)

COMPANY

Pacific Gas & Electric
American Electric Power
Commonwealth Edison
Southern CA Edison Gas Company
Transco Energy
Ensearch Corp.
Philadelphia Electric
General Pub Utilities
Detroit Edison
Texas Oil & Gas
Alleghany Power System
Peoples Energy Corp.
Ohio Edison
San Diego Gas & Electric
NY State Electric & Gas
Oklahoma Gas & Electric
Public Service of Indiana
Rochester Gas & Electric
Portland Gas
Teco Energy
Delmarva Power & Light
Atlantic City Electric
Public Service of NH
Central Hudson Gas & Electric
Kentucky Utilities
Minnesota Power & Light
Atlanta Gas & Light



GOVERNMENT (G)

NAME

New York City Office of Management
State of Minnesota
State of New York
State of Texas
State of Pennsylvania (Education Authority)
State of Michigan
State of Ohio
State of Florida
State of Virginia
State of Georgia
State of New Jersey
State of Washington
State of Missouri
State of Alabama
State of Kentucky
State of Louisiana
State of Indiana
State of Wisconsin
State of Oklahoma
City of Philadelphia
State of Oregon
Metropolitan Dade County
State of Nebraska
Los Angeles County
Metro Nashville & Davidson County
City of Detroit
City of Chicago



TRANSPORTATION (T)

COMPANY

CSX
United Airlines
American Airlines
Eastern Airlines
Delta Airlines
TWA
Ryder
Northwest Air
Sea-Land Industries
Republic Airlines
Hertz
Texas Air
Leaseway Transportation
Tiger International
Western Airlines
Flying Tiger Airlines
Baltimore & Ohio RR
Illinois Central RR
American President Lines
Purolator Courier Corp.
Pacific S/W Airlines
Frontier Holdings
Southwest Air
Soo Line
Preston Truck



HOSPITALS & HEALTH CARE FACILITIES BY # BED RANKING (H)

HOSPITAL

Millhaven Corporation
American Medical International
Humana
United Health Facility
NY City Health & Hospital
Sisters of Charity
Sisters of Mercy
Sisters of Providence
Kaiser Foundation
Mayo Clinic
Rush-Presbyterian Medical Center
Cedars-Sinai
N/W University Hospital
Boston O. Hosp.

Insurance Health Plan of NY
Health America
US Health Care
Charter Med
Group Health Corp. of PS

LA City Health Services

N = 20



FINANCIAL INSTITUTIONS, (BANKS) (F)

Citibank
Bank of America
Chase Manhattan Bank
Manufacturers Hanover
Security Pacific
First of Chicago
Mellon Bank
Continental Bank
First Bank System
Crocker National Bank
Bank of Boston
Texas Commerce Bank
M Corp (Mercantile)
Irving Bank
NCNB Corp.
Bank of New York
PNC Financial Corp.
Republic Bank
Southeast Banking
Harris Bancorp.
Bank of New England
California Federal Savings & Loan
Home Federal Savings
Imperial Savings & Loan
Bowery



APPLICATIONS FOR TURNKEY SYSTEMS - MANUFACTURERS

<u>TYPE</u>	<u>VALUE(million)</u>
CAD/CAM	2.9
MANUFACTURING CONTROL	2.5
PRODUCTION SCHEDULE	2.0
ACCOUNTING	1.2
MANUFACTURING ANALYSIS	1.1
PREVENTIVE MAINTENANCE	1.0



APPLICATIONS FOR TURNKEY SYSTEMS - UTILITIES

<u>TYPE</u>	<u>VALUE(million)</u>
NUCLEAR FUEL MANAGEMENT	4.6
GENERAL ACCOUNTING	3.0
TAX ACCOUNTING	2.7
ELECTRONIC MAIL	0.9
METER READING	0.8



APPLICATIONS FOR TURNKEY SYSTEMS - TELEPHONE CO'S

<u>TYPE</u>	<u>VALUE(million)</u>
OFFICE AUTOMATION	5.0
DIRECTORY ASSISTANCE	2.3
INVENTORY	1.3
GENERAL ACCOUNTING	1.3
DIRECTORY ASSISTANCE	0.8



APPLICATIONS FOR TURNKEY SYSTEMS - HOSPITALS

<u>TYPE</u>	<u>VALUE(million)</u>
IMAGING ANALYSIS	1.60
LAB. MANAGEMENT	1.10
SUPPORT	0.42



APPLICATIONS FOR TURNKEY SYSTEMS - TRANSPORTATION

<u>TYPE</u>	<u>VALUE(million)</u>
OPERATIONS	0.9
AIRLINE MAINTENANCE	0.9
OPERATIONS SCHEDULING	0.9
CREDIT UNION PROCESSING	0.5

APPLICATIONS FOR TURNKEY SYSTEMS - INSURANCE

<u>TYPE</u>	<u>VALUE(million)</u>
ACTUARIAL SUPPORT	3.3
WORK ANALYSIS	2.0
ACCOUNTING	2.0
DEVELOPMENT SYSTEM	1.0



APPLICATIONS FOR TURNKEY SYSTEMS - GOVERNMENT

<u>TYPE</u>	<u>VALUE(million)</u>
ACCOUNTING	1.3
LOTTERY	1.0
OFFICE AUTOMATION	1.0
PROPRIETARY (ANALYSIS)	0.8



AREAS OF ACTIVITY INVOLVEMENT - MANUFACTURING

<u>ACTIVITY</u>	<u>RATING</u>	<u>RATING 5</u>	<u>FACTOR</u>
VOICE DATA INTEGRATION	77 3.8	17	0.7
MICRO-MAINFRAME LINKAGE	93 3.8	24	0.9
CORPORATE DATA BASE DEVELOPMENT	87 3.9	24	0.9
COMMUNICATION NETWORK INTEGRATION	87 4.2	34	1.4
OFFICE AUTOMATION	87 3.4	17	0.6
PROCESS OR PRODUCTION AUTOMATION	83 4.4	45	2.0
INTER/INTRA INDUSTRY DATA EXCHANGE	46 3.2	3	0.1
DEPARTMENTAL COMPUTING SYSTEMS	77 3.2	3	0.1
OTHER			

PRELIMINARY

AREAS OF ACTIVITY INVOLVEMENT - UTILITIES

<u>ACTIVITY</u>	<u>RATING</u>	<u>% RATING 5</u>	<u>FACTOR</u>
VOICE DATA INTEGRATION	30 3.6	11.0	0.4
MICRO-MAINFRAME LINKAGE	81 3.5	3.7	0.1
CORPORATE DATA BASE DEVELOPMENT	89 4.6	60.0	2.8
COMMUNICATION NETWORK INTEGRATION	89 3.9	26.0	1.0
OFFICE AUTOMATION	93 3.3	11.0	0.4
PROCESS OR PRODUCTION AUTOMATION	52 4.1	18.5	0.8
INTER/INTRA INDUSTRY DATA EXCHANGE	48 3.1	3.7	0.1
DEPARTMENTAL COMPUTING SYSTEMS	63 3.1	3.7	0.1
OTHER			

PRELIMINARY



AREAS OF ACTIVITY INVOLVEMENT - GOVERNMENT

<u>ACTIVITY</u>	<u>RATING</u>	<u>% RATING 5</u>	<u>FACTOR</u>
VOICE DATA INTEGRATION	59 3.5	18.5	0.7
MICRO-MAINFRAME LINKAGE	96 3.7	22.2	0.8
CORPORATE DATA BASE DEVELOPMENT	81 3.9	7.4	0.3
COMMUNICATION NETWORK INTEGRATION	89 4.2	37.0	1.5
OFFICE AUTOMATION	96 3.6	18.5	0.7
PROCESS OR PRODUCTION AUTOMATION	30 3.1	7.4	0.2
INTER/INTRA INDUSTRY DATA EXCHANGE	56 2.8	0.0	0.0
DEPARTMENTAL COMPUTING SYSTEMS	93 3.1	7.4	0.2
OTHER			

PRELIMINARY

AREAS OF ACTIVITY INVOLVEMENT - TRANSPORTATION

<u>ACTIVITY</u>	<u>RATING</u>	<u>% RATING 5</u>	<u>FACTOR</u>
VOICE DATA INTEGRATION	32 2.8	0	0.0
MICRO-MAINFRAME LINKAGE	80 3.7	8	0.3
CORPORATE DATA BASE DEVELOPMENT	80 4.4	36	1.6
COMMUNICATION NETWORK INTEGRATION	76 4.2	36	1.5
OFFICE AUTOMATION	84 3.1	8	0.2
PROCESS OR PRODUCTION AUTOMATION	16 3.0	0	0.0
INTER/INTRA INDUSTRY DATA EXCHANGE	72 3.9	20	0.8
DEPARTMENTAL COMPUTING SYSTEMS	32 2.5	4	0.1
OTHER			

PRELIMINARY



AREAS OF ACTIVITY INVOLVEMENT - INSURANCE

<u>ACTIVITY</u>	<u>RATING</u>	<u>% RATING 5</u>	<u>FACTOR</u>
VOICE DATA INTEGRATION	68 3.5	12	0.4
MICRO-MAINFRAME LINKAGE	96 3.5	16	0.6
CORPORATE DATA BASE DEVELOPMENT	92 3.8	44	1.7
COMMUNICATION NETWORK INTEGRATION	88 4.1	36	1.5
OFFICE AUTOMATION	92 3.6	8	0.3
PROCESS OR PRODUCTION AUTOMATION	12 1.7	0	0.0
INTER/INTRA INDUSTRY DATA EXCHANGE	72 2.8	4	0.1
DEPARTMENTAL COMPUTING SYSTEMS	88 3.2	12	0.4
OTHER			

PRELIMINARY



AREAS OF ACTIVITY INVOLVEMENT - TELEPHONE

<u>ACTIVITY</u>	<u>% Involved</u>	<u>RATING</u>	<u>\$ RATING 5</u>	<u>FACTOR</u>
VOICE DATA INTEGRATION	60	3.9	25	1.0
MICRO-MAINFRAME LINKAGE	95	4.2	45	1.9
CORPORATE DATA BASE DEVELOPMENT	75	3.9	25	1.0
COMMUNICATION NETWORK INTEGRATION	90	4.6	55	2.5
OFFICE AUTOMATION	90	3.3	10	0.3
PROCESS OR PRODUCTION AUTOMATION	20	4.3	5	0.2
INTER/INTRA INDUSTRY DATA EXCHANGE	65	2.7	0	0.0
DEPARTMENTAL COMPUTING SYSTEMS	80	3.3	10	0.3
OTHER				

REMARKS

LIKELIHOOD SENIOR MANAGEMENT WOULD REDUCE
SYSTEMS BACKLOG WITH CSI APPROACH

	<u>MEAN RATING</u>	<u>% RATING 3 OR MORE</u>
MANUFACTURING	3.2	63
TELEPHONE CO'S	2.8	60
INSURANCE	2.9	48
GOVERNMENT	3.1	41
UTILITIES	2.7	41
TRANSPORTATION	2.8	56
HOSPITALS	3.2	65
<i>Banks</i>	<i>2.9</i>	<i>765</i>

PRELIMINARY



LIKELIHOOD CSI WOULD BE SELECTED FOR ANY PROJECTS

	<u>MEAN RATING</u>	<u>% RATING 3 OR MORE</u>
MANUFACTURING	2.2	30%
TELEPHONE CO'S	2.3	30%
INSURANCE	1.9	25%
GOVERNMENT	1.9	28%
UTILITIES	1.8	15%
TRANSPORTATION	2.0	35%
HOSPITALS	2.6	44%
Bank	2.2	36%

PRELIMINARY

